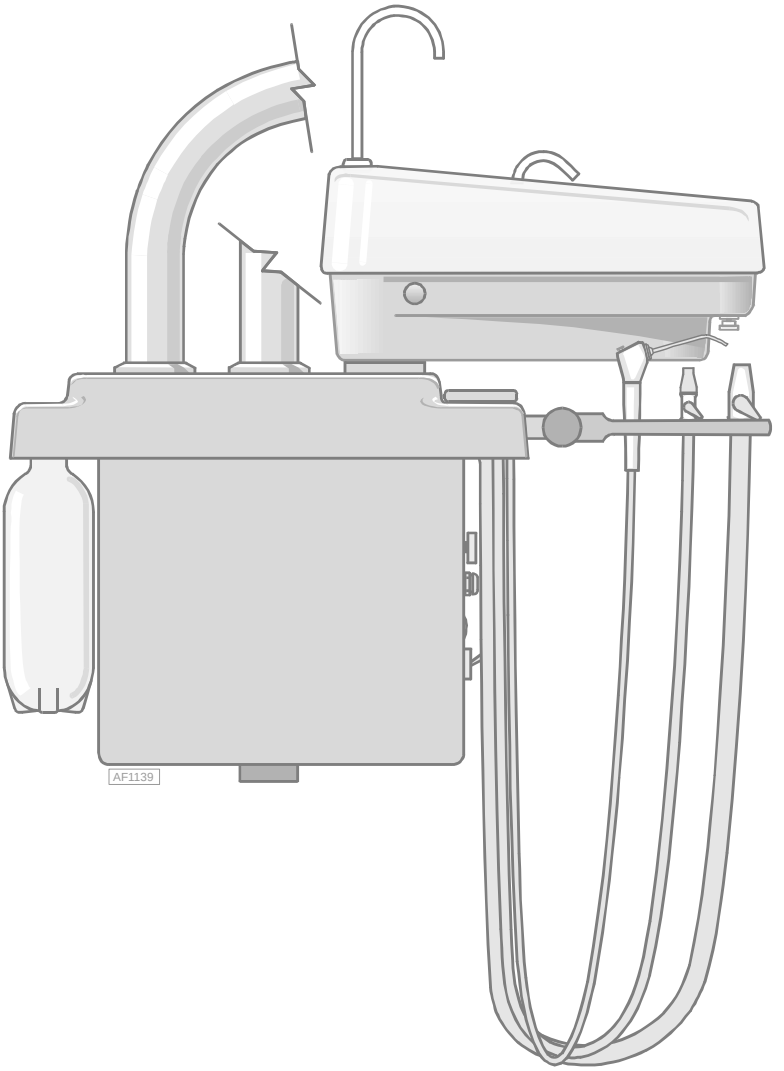
Dental Water Quality

Using the Knight Self Contained Water system.



Self Contained Water System

Water Quality

In recent years, there has been an increased awareness of the potential microbiotic hazards in the dental office both to the patient and health workers. One area of concern in the dental office is the build up of biofilm in dental unit waterlines and tubings. As of present there has been no definite connection between health problems and dental unit water, but there are documented reports of waterborne disease in other medical disciplines and institutions.

Biofilms are formed in water lines when molecules present in the water condition the surface of the tubing and form a film (slime) that can enhance the ability of microorganisms to adhere to the tubing. Over time these organisms multiply and enjoy a degree of resistance and a nutritional advantage because of the protection provided by the biofilm matrix.

Most experts have suggested that public water supplies are a major source of microorganisms in dental waterlines. The ADA urges manufacturers to equip new dental units with separate water reservoir systems independent of the public water systems and to offer accessories to serve the same function on existing units.

Knight's System

The Knight Clean Water System addresses this issue with a built in water bottle system which allows the dentist to control the quality of water that is introduced into the dental unit. By isolating the dental unit water source and establishing a regular procedure of purging and disinfecting, this type of system can provide significant improvement over using public water. These systems are not guaranteed to provide a completely 100% sterile water system and their effectiveness is dependent on developing and following a regular procedure that is integrated with other established aseptic procedures.

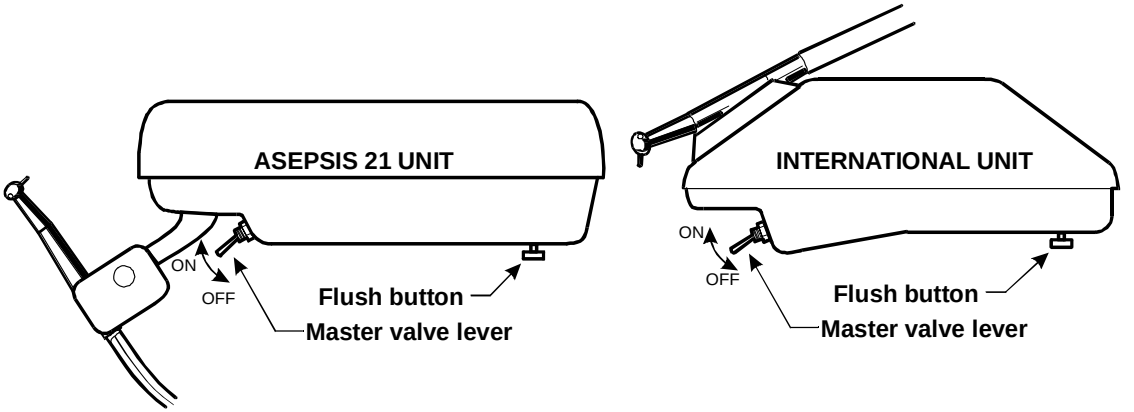
References:

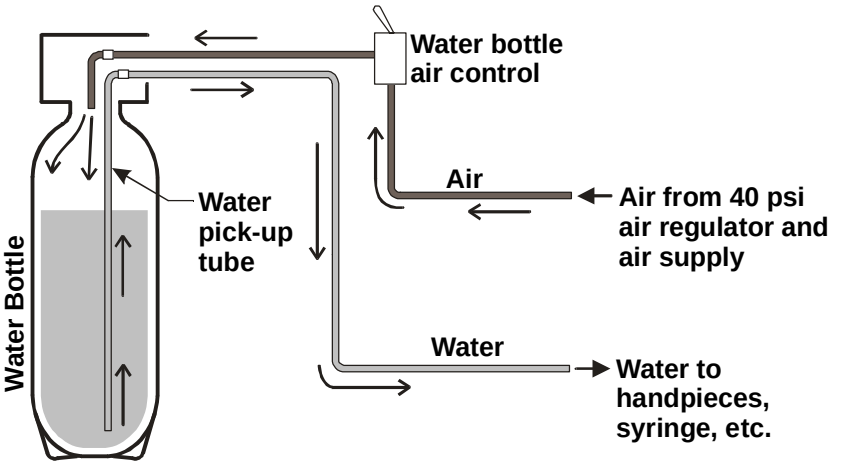
Statement by *ADA Board of Trustees* dated December 13, 1995, and the *ADA Council on Scientific Affairs*, September 28, 1995.

Biofilm and the Dental Office by Brian G. Shearer, Ph.D. - Article from JADA, Vol. 127, February 1996.

Clean Water System Controls and Function

The Knight Clean Water System is simple in concept and easy to use and maintain. Regulated air is delivered to the system at 40 psi. When the water bottle air control is turned on, air pressurizes the bottle above the surface of the water and forces water into the pick-up tube. This fills the system and makes water available where it is needed.





Recommended Cleaning and Disinfectant Procedures

Knight Manufacturing Inc. assumes no responsibility or liability for any result, expressed or implied. This publication is an attempt to convey to the user a suggested procedure based on the best information available at the time.

Using concentrations of bleach greater than the recommended concentration on page 5, can cause permanent damage to the equipment.

Beginning of Work Day

1) Install a clean water bottle filled with sterile distilled water.
2) Perform the **Purging Procedure** *(See Page 5).*
3) Install sterile handpieces.
4) Set the coolant water and coolant air volume controls to the desired position.
5) Set up for the next patient according to office procedures.

Between Patients

1) Turn off the master valve lever.
2) Remove the handpieces and remove disposable tips, barriers, etc., according to office procedures.
3) Perform surface cleaning and disinfection according to office procedures.
4) Perform the **Purging Procedure** *(See Page 5)***.**
5) Install sterile handpieces.
6) Set up for the next patient according to office procedures.

End of Day

1) Turn off the master valve lever.
2) Remove the handpieces and remove disposable tips, barriers, etc., according to office procedures.
3) Fill the bottle with **diluted bleach solution** (*see Diluted Bleach Solution on Page 5*) and install the bottle.
4) Perform the **Purging Procedure** *(See Page 5)***.**
5) Let the solution stand in the system for 5 minutes.
6) Turn off the master valve lever and remove bottle with the remaining solution.

7) Install a clean empty bottle.
8) Perform the **Purging Procedure** a second time with the empty bottle until all the solution is expelled from the system.
9) Turn off the master valve lever and press the foot control until all pressure is relieved from the system.
10) Perform surface cleaning and disinfection according to office procedures.

End of Week

1) Turn off the water bottle air control.
2) Discard the remaining water from the bottle and rinse the bottle with **diluted bleach solution** (*see Diluted Bleach Solution on Page 5*).
3) Clean the bottle cap and tubing using disposables saturated with the bleach solution.
4) Fill the bottle with the bleach solution and install the bottle.
5) Perform the **Purging Procedure.**
6) Let the solution stand in the system for no less than 10 minutes and no longer than 30 minutes.
7) Turn off the water bottle air control and remove the bottle with the remaining solution.
8) Empty and re-install the bottle.
9) Perform the **Purging Procedure** a second time without liquid until all the solution is expelled from the system.
10) Turn off the water bottle air control.
11) Remove the empty bottle, fill with sterile distilled water and re-install.
12) Perform the **Purging Procedure** a third time until no bleach odor is evident in the discharged water.

Storing

If the equipment will not be in use for extended periods of time, the system needs to be stored dry to reduce the possibility of bacteria growth. To do this follow the **End of Week** procedure and repeat step 9 to remove all liquids from all tubings.

Purging Procedure

1) Turn on the master valve lever on the unit head and the water bottle air control *(See Illustrations on Page 2).*
2) Remove a handpiece hose from its holder.
3) Depress the foot control to operate the coolant water and drive air for 30 seconds.
5) Depress the coolant water flush button on the underside of the unit head to allow the water to flow for 30 seconds. *The water should run in a continuous stream without interruption for 30 seconds, run the water longer if necessary.*
6) Repeat this procedure with each handpiece hose.
7) Operate the air and water for both doctor and assistant's syringes for 30 seconds.

Diluted Bleach Solution

1 part Household bleach (5.25%)

9 parts Distilled water

Note: Mix fresh solution daily and do not use bleach with additives or bleach that is colored or scented.

Using concentrations of bleach greater than the recommended concentration above, can cause permanent damage to the equipment.

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